

Innovation Year	Award Name	Application Key	Innovation Title	Current Stage
2024	Implemented Innovations	IM2024-TCS-GI-2024-0089402	Data series comparison tool	TCS Innovista Participant

BASIC INFORMATION

Applicant Name: Vishnu Srivardhan Gollakaram
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Applicant Tata Company Name: Tata Consultancy Services
Applicant Timezone: (GMT+05:30) Asia/Calcutta
Primary Evaluation Subject: Tata Innovista
Secondary Evaluation Subject: IT - Software development
Alternate Primary Subject: Tata Innovista
Alternate Secondary Subject: Customer Service
Award Sub Category: Process Innovations in Business Support Functions
Is this a joint project with another Tata company?: No
Is this entry of yours an outcome of further work done on any one of the past entries in Piloted technologies or Dare to Try?: No

PROJECT DESCRIPTION

- Q1** **Executive Summary of your Innovation (please write this very carefully - click on the "info" icon for details)**
- The client is a well-known supplier of telecommunications equipment in a certain nation. Their service assurance system features particular types of metrics to assure client-specific network functions. A pre-analysis study of a network function's each version release is required to determine the metrics eligible to be introduced or modified in the client's system. This innovation is primarily designed to accelerate the analysis of the client-specific data format among these version releases.
- Q2** **When did you start work on this project? [permitted date range is Jan 1, 2021 to Sep 30, 2023]**
- 2022-05-16
- Q3** **Explain your innovation in detail. Relate it to the problem you solved. Please use simple language (avoid abbreviations). Clearly highlight the contribution of your innovation in the overall project.**
- The client being the owner of their network service assurance system, has to assure their supported network functions in the system. This requires developers to configure certain metrics of the client-supported network functions in the system. With every product release, newer versions of network functions are published. To determine whether the metrics from new versions of the client's network functions are to be supported, an analysis study needs to be conducted. This study aims to analyze differences between the last supported version and the latest version including intermediate versions. To obtain differences, earlier the process was to manually compare the data files using content comparison tools and segregate the results into either new additions, deletions or modifications. This process was time-consuming, required deep understanding of the product and may generate human errors - so, rigorous re-verification of the work was required. This innovation automates the delta analysis process where the user's role is confined to inputting two release versions of network functions. This tool directly accepts and analyzes yang_model data format, which is the default format used in network function release packages. It then generates delta in multiple data formats (XML, JSON, XLSX). This tool's capability in comparing the content of type data series is open-ended and can be extended further by building on top of existing functionality.
- Q4** **What is the key inventive step in your project? Please describe accurately only the unique or novel element of your project. Please cite established, trustworthy sources to support your claim. (Click on the "info" icon for details).**
1. Ability to generate delta report for provided yang_model data within minutes.
 2. Providing support for xml and json input formats of yang_model.
 3. Ability to provide delta in several data formats - xml, json and csv(xlsx).
- Sources: Supporting video and snapshots provided.
- Q5** **Describe the problem you solved with this innovation. How did you identify the problem & why did you decide to solve this problem now? [click the "info" icon for details]**
- Problem Solved: Automating comparison process for yang_model data.
Identification: This problem was identified, as part of our team activities recurring around 70 times in every 6-month release.
Reason to solve: The manual data comparison is time-consuming and might be prone to human errors.
- Q6** **How old was the problem you decided to solve with this innovation?**
- Old problem
- Q7** **How has the life of your customer changed with this innovation? Explain in the form of a story (before-after scenario)**
- This innovation catalyzes the development processes and results in rapid delivery of requirements. Customers can expect error-free quick deliverables and an overall smooth release delivery. This innovation can be re-used with minimal customization on top of existing functionality in other projects.
- Q8** **What other solutions did you or your colleagues in the past try before you selected this one? Explain why this is the best solution to the stated problem**

This is the initial attempt to derive a solution. This is the best solution till date as it covers all the necessary use cases through the tool's different features. and the tool can be the best provided solution . It defaults to project specific configuration and provides yang_model data delta in a format readily configurable in common portable deployable package for collection and visualization.

Q9 What was the key challenge faced and how did you overcome it? Explain in terms of action taken and efforts put in.

Initially, the tool was developed with the idea of providing delta for only service assurance-supported network function-related faults. The challenge was generalizing the tool for all mib data in yang format and extending it to all API data interchangeable formats.

Q10 What were the initial risks involved in this innovation. How did you mitigate / overcome them? What risks did you carry on with till the successful implementation?

Risk: Impacting deliverables was the primary concern as the tool was not part of any design requirement. Accuracy and consistency under constrained time were also the factors of risk, as even the slightest of errors or misses in data processing would lead to re-work and loss of expected insights.

Mitigation: Vigorous testing was performed with different test case scenarios and user inputs. Extra hours of effort were put in to make sure implementing the tool did not affect deliverables. Extended the tool's functionality to be data and data model independent.

Q11 Upload an image file #1 relevant / supporting your innovation.

Q12 Upload an image file #2 relevant / supporting your innovation.

Q13 You may upload a short video (less than 60 seconds duration) that showcases your innovation and helps the jury to visualise it

IMPLEMENTATION PARTNERS

Q1 Did you have a partner(s) at any point while you were working on this innovation?

No - this was totally (100%) done inhouse by us

OUTCOMES - IMPACT AND BENEFITS

Q1 Title of KPI-1: Mention the performance indicator and how you measure / monitor it.

Time Saving (%)

Q2 Benefits reported in terms of KPI-1: from the date of implementation till Sep 30, 2023. Please mention the benefit that can be attributed to this innovation only

Initially it required from certain hours to a complete day to compare one version of yang_model supported faults data, post-implementation it has always been done within minutes.

Q3 Improvement in the above KPI-1 as a result of this innovation (please use percentage terms - eg: X%)

87%

Q4 Please explain and justify this impact (basis of arriving at the number). Clearly state assumptions made.

Before: It took around 4 hours to compare one version of fault data.
After: Half an hour is the time allocated for data comparison. (Reduces 87% of time utilized)
Savings: An average of 66 such comparisons were performed in a 6-month release cycle, saving 230 hours i.e., 1 month per release (17% of release time).

- Q5 Future benefit expected in terms of KPI-1 for next two years: until Mar 31, 2026**
Designer would be saved all the time consumption for manual data comparison and processing only required data fields. Scope can be extended by modifying the to support all data interchange languages.
- Q6 State reasons, assumptions & brief plan to achieve the above. Address uncertainties and risks you expect in achieving the above impact and plans to mitigate / overcome them**
Reason: The tool currently caters to all identified use cases that could be automated.
Assumptions: The tool will be in use till march 2026.
Uncertainties: None identified.
Projected risks: None identified.
Plans to overcome: Not Applicable.
- Q7 Title of KPI-2: Mention the performance indicator and how you measure / monitor it.**
Human labor efforts (%)
- Q8 Benefits reported in terms of KPI-2: from the date of implementation till Sep 30, 2022. Please state the benefits that could be clearly attributed to this innovation only**
The process automation achieved from innovating yang_model fault comparison process reduced human efforts involved and lead to elimination of human errors.
- Q9 Improvement in KPI-2 in percentage (before-after the innovation)**
90%
- Q10 Please explain and justify this impact on KPI-2. Clearly state reasoning & assumptions made.**
Before: 4 hours required to compare one version of fault data by 1 developer and verification in the common configurable package by 1 other designer.
After: 0.5 hours is the maximum effort to obtain delta with only one developer involved.
Savings: Labor efforts of almost 7 developers are saved here.
- Q11 Future benefit expected in terms of KPI-2 for next two years: until Mar 31, 2026**
Faster delivery rates of designers with minimal human errors.
- Q12 State reasons, assumptions & brief plan to achieve the above. Address uncertainties and risks you expect in achieving the above impact and plans to mitigate / overcome them**
Reason: The tool can override all manual efforts required for obtaining delta.
Assumptions: The tool will be in use till march 2026.
Uncertainties: None identified.
Projected risks: None identified.
Plans to overcome: Not Applicable.

SUB-CATEGORY SPECIFIC QUESTIONS

- Q1 Where was your innovation deployed?**
Deployed INSIDE my company
- Q2 In terms of commercialization, what is the current state of this project?**
The project was a pilot only and is yet to be rolled out to our customers..
- Q3 When was the project piloted? Provide the month and year (mmm/yyyy)**
05/2022

- Q4** **When is the project likely (mmm/yyyy) to be commercialised (put to use)?**
In use-project prod.
- Q5** **Please provide the name and other relevant details of the unit / function / department of your company where your innovation was deployed.**
Business unit: EGG CMT 1.1
- Q6** **How did the customer benefit? Describe the impact of this project on your Customer, including the before-after situation from the customer's perspective.**
Designer efforts reduced by a significant amount
- Q7** **Quantify the benefit delivered to your customer, that can be measured in financial terms.**
9280 US Dollar
- Q8** **What are the overall opportunities for the deployment of this innovation (within your company and your subsidiaries)? How much of this is already implemented?**
Any project in need of a data comparator can develop on top of the current implementation. The current implementation is 100% complete in the current project.
- Q9** **If you have received endorsements for your innovation from your customers, you may attach it here (one PDF file only)**

AVOIDING REPLICATION THROUGH IPR

- Q1** **How will the uniqueness of your innovation be retained? How will you avoid your competition to copy or adapt your innovation?**
The tool generates outputs in 3 different formats in all. 2 data formats (XML, JSON) specific to the network function package along with 1 concise and user-convenient data format (XLSX) which covers better understanding and backtracking. Potential competitors have to find better ways to represent the delta reports.
- Q2** **IPR Generation: Please select one of the following options:**
This project has not generated any IPR

SUBMIT

- Q1** **The presentation rounds will be held virtually using the Microsoft Teams platform.**
Noted
- Q2** **Which depute location will the primary speaker present from?**
Hyderabad/ Mumbai
- Q3** **In case your project wins, where should we send the Memento/certificate(s)? Please provide the name of one recipient (from your team) along with complete address to courier the Memento/certificate(s).**
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Q4

I hereby confirm that all information given in this form is true. In case any information is found inaccurate, I understand that this project may be disqualified.

I agree

Team Details

Member 1

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